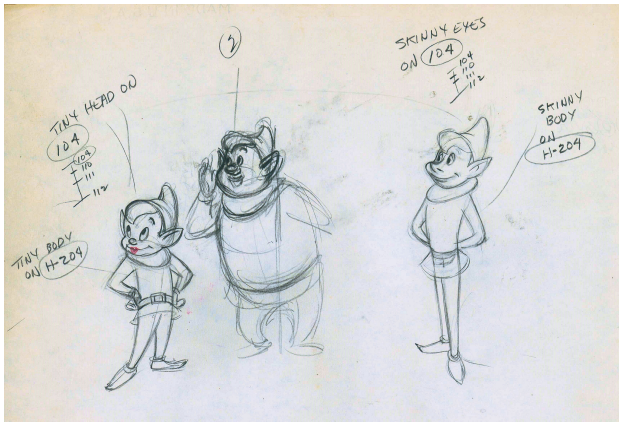
Jack Dazzo began his animation career in 1950 as an opaquer at Famous Studios in New York. Within six months Jack was part of the inbetweening pool, seen here with his head on Sal Faillace's shoulder while Fred Surace shaves him. Next to them are Truman Parmalee and Howard Beckerman.

After a couple years at Famous, Jack Dazzo joined Shamus Culhane Productions to work on television commercials, becoming an assistant animator there. Before Shamus Culhane opened his own shop he had contributed to two feature-length Disney animations, and two at Fleischer Studios. Culhane's studio was an education, as they created some of their era's most notable teleblurbs.

Around 1956 Jack Dazzo felt confident enough to start writing a book about animation technique. It never saw completion. Jack is gone now, but the Dazzo family has kindly made his notes available for free publication in this PDF format.



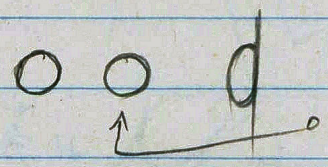
AMGEN®

ANIMATION
HINTS
(ETC)

INBETWEENING

CONTACT An object never changes its shape until the contact is established.

BALL



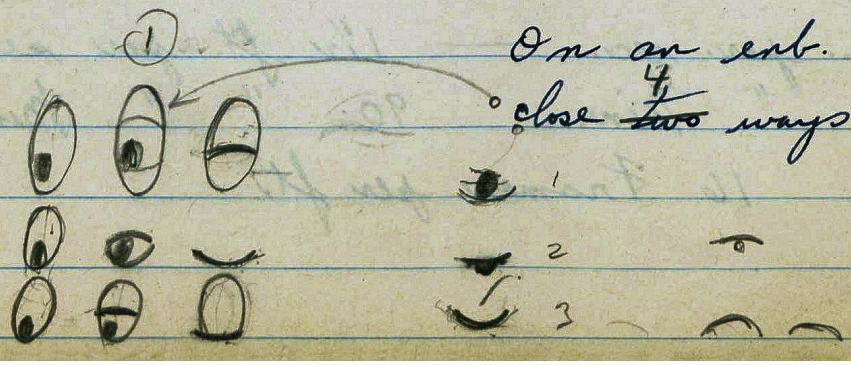
Middle doesent change.

FEET - When you have an extreme where the foot is on the ground + another extreme where the heel is touching the ground; - the int. should have the complete foot on the ground.

SPEED EFFECTS - IN COLOR The first + main color - gets lighter with Red - + fades with blue.

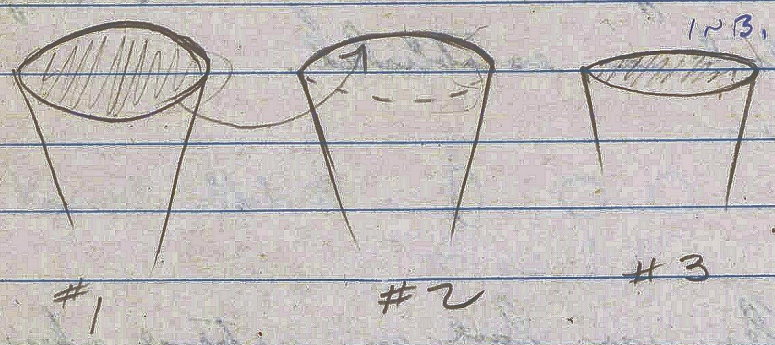
The same apply for the Toe when it leaves the ground. Leave the toe on the ground.

EYES. CLOSING



On an int. the eye may close ~~two~~ 4 ways.

PROBLEM - Make a first of two; closer to one



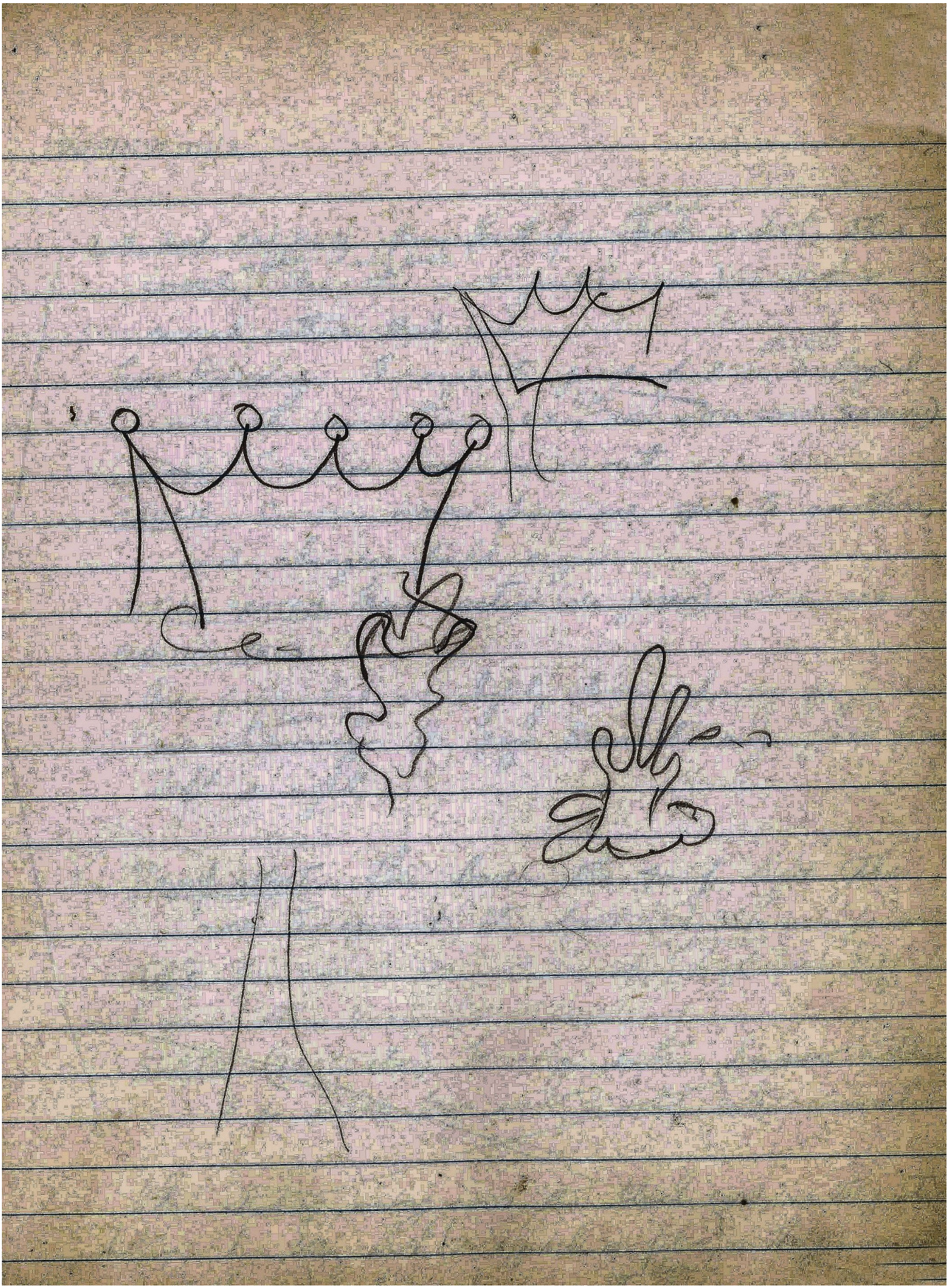
Eclipse becomes much smaller

This may apply to many forms + objects, coin, hand, etc

WALK - The average has 12 frames per step. (Held twice only six drawings are necessary.)
RUN - The average has 4 or 5 drawings

WATER When it drips from a faucet its shaped oval ∫ then round, ○ then oval ! When glides its edges are lace shaped
When flowing :

24 exp. per. sec. — 1½ ft. per sec.
1440 " " Min. 90 " " Min
16 Frames per ft.



DEFINITIONS

1st, 2nd, 3rd RUN ~~One~~ part of a ~~book~~ scene is shot, Then is covered, + film is held back Then the next part (or run) is shot + covered, with a black card.

Cen Overlay A seperate piece of B.G. or cel. is layed over the animation. (EX. O.L. TREE WITH CHAR. BEHIND)

Zoom Camera moves in or out.

TRUCK Camera moves from one spot to another, and changes field sizes

ACTION SKETCH Main action (or poses) in a scene.

FLOATING PEGS

Are pegs which are slighty above ordinary pegs, and ~~are stationary~~ can PAN. The pegs beneath may pass freely left or right.

% of LIGHT The lower the % of light the more transparent the object. (EX. 35% used for smoke)

TAG An added scene at the end, or beginning of a picture. May be used as a station break. (NOT sure)

~~SLATE (20-30 etc.) meaning extra frames added to a scene, may want to add extra animation.~~

When shooting many runs the black card is to protect whatever has been shot (or exposed on film) on the previous run. (Otherwise a double exp.) Each run loses ~~something~~ degree from previous run.

A WIPE is an imaginary dividing line which removes one scene & introduces another.

DISSOLVE - FADES - CAN CHANGE

DEFINITIONS

WIPES 3 different ways

X (1) Camera, Cameraman cannot ~~move~~ CHANGE his camera FIELD on a wipe. Done mechanically by the cameraman, ~~with the plate~~. Fields must always be the same. Can never change.

(2) Animation + Camera wipe are basically the same. Both are Done with Anim. cells. Fields must be the same.

(3) Optical Done with film with by (BI-PAK) (OPTICAL PRINTER) Done in the lab. Fields may be the same, or different. They use standard wipes which are already film.

TYPES OF WIPES

(a) Frame

✓ (b) Circle

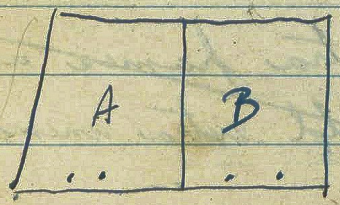
(C) Barn door

(D) Diagonal LEFT TO RT.

(E) Around the clock

~~On~~ A ~~camera~~ + optical wipes are both done with standard wipes which are already on film. (NOT TRUE)

DEFINITION



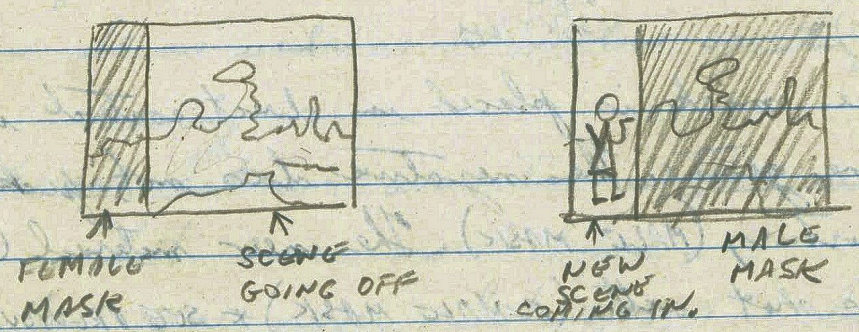
ANIMATON

BLANK CELL

X Types of wipes used in a picture (BI-PAK OR CAMERA) are entirely up to the director, not the animator.

Masks are black because they do not reflect light and pick up as a blank area on a negative. If the spot (area) is developed it would appear as black on a positive.

Using this principal on wipes, a "female" and male masks are used. EX.



Optical wipes are done in two ways by the cameraman. 1) Camera 2) OPTICAL PRINTER.

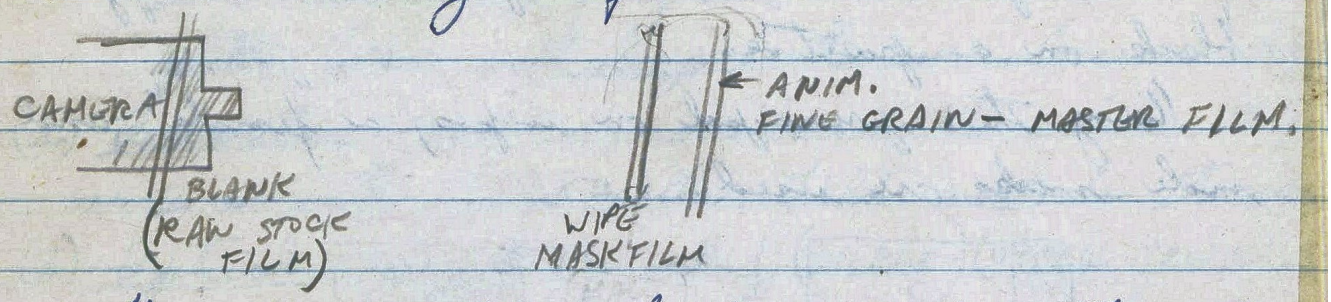
1) Camera (BI-PAK) optical (TOP FILM IS BLANK NEG. UNDERNEATH LIVE ACT.)

~~Shoot anim. with mask over it,~~ Shoot mask over white card. Result mask portion does not pick up on new neg, ~~Roll neg. back~~ but white portion reflects live action on film. Roll back neg and shoot reverse mask over animation. ~~(TURN AHEAD 5 PGS) FOR DIAG.~~

* You mainly use camera optical (BI-PAK) when: you wipe on animation and wipe off live action (or vice-versa) You usually use an animated wipe in a sc. going from an anim. ~~wipe to~~ sc. to another anim. sc.

2) Optical printer

The cameraman has all types of wipes which are already on film.



The wipe mask is placed in direct contact with the anim fine grain. The negative does not pick up the mask portion, (MALE MASK). The new material (scene) coming in is shot with (FEMALE MASK) * SEE PREVIOUS PG. FOR EXPLANATION!

MOUTH ACTIONS

a) Accent on the widest mouths

(a) you ~~can~~ never have an accent on a consonant

(b) If you have a sound on 2 exp.'s you may hit it on one before

c) Most important sounds are A - I - OO

D) Keep in mind when using (M), mouth it should be as wide as or narrow as the previous or following drawing

E) Never hit an animation action on the accent but 2 or more before.

F) You can <u>never</u> hit T, S, M, late! Maybe early!

1) Animation of noises. 2) Musical cadences of speach 3) Varying intensity MARK OF ACCENT ON EXP. SM. accent DYING AWAY.

You analize track by listening to it, and placing accents on sounds

1) Major (loudest) 2) Minor 3) Lesser accents in phases.

EH, GE, K (R - AT END OF WORD) • OO (AS IN LOOK) POSITION OF TONG. DEPENDENT ON NEXT POSITION Λ

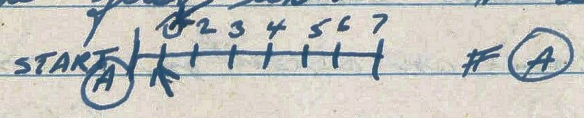
There are specific types for each catagory - Variation in size of mouth depend upon speed + following sounds.

Animator charts sequence of <u>sounds</u> on pages to determine variations.

DEFINITIONS

THINGS TO REMEMBER

On a pan ~~pan~~ the first number never appears on the first line. On a repeat pan #7 becomes



A SCRATCH OFF GUIDE

EXAM (An object passes over a dirty area and makes it clean.) The cameraman places the cell over the guide and wipes off the area indicated for that particular exposure. The shots that cell takes the next cell repeats the procedure.

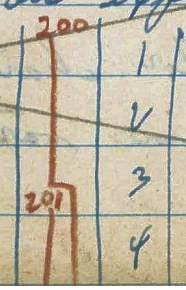
LOGO

A stat of the trade mark of the CO.

SLATE

Taken from the blackboard slates used in motion pictures. Means the cameraman should write on the begining of a scene whatever is stated. EX. SLATE: "RETAKE, PART TEST," or SLATE 3 or 10 frames extra. (Meaning there are that many frames extra in the scene. Few animation may be added or that many frames may be cut off the scene. Footage includes the EXTRA FRAMES

~~A double line down the column of an exp. sheet means something is fading in & something is fading out of the scene.~~



DEFINITIONS

ANIMATION — Is the creation of the illusion of motion on film, Television, animated sync or other communicational devices by the use of successive drawings, by moving cut-outs, or other objects, or by altering any drawing in progressive steps under the camera.

ROTO (LIVE ACTION)

The live action is on a film. You put this film in a camera with a blank film. (fine grain film) Both films are called a;:

Bi-Pak

You take black masks of your animation and shoot them against a white card. (Double exposed) (The white reflects up allowing the ~~f~~ live action to become exposed on the fine grain.) The black mask does not pick up [or reflect] because of the emulsion on the film, and becomes an unexposed spot. On completion of shooting the mask the film is wound back + the animation is shot against a black card, thus protecting the live action from becoming re-exposed (or double exposed)

SEE NEXT PAGE →

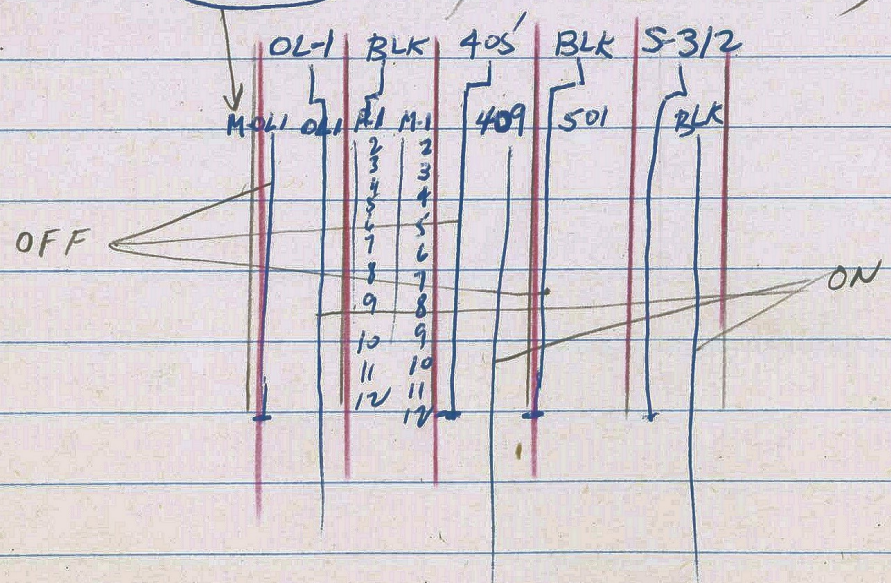
TECHNICAL TERMS USED ON EXP. SHEETS.

1) 16 EXPOSURE FADE IN OF ——————
2) (X) + (M) ON VERTICAL SIDE PEGS
3) CAMERA WIPE - SOUTH TO NORTH — or — 12 EXPOSURE DIAGONAL WIPE SOUTHEAST TO NORTHWEST ETC.
4) START 48 EXPOSURE TRUCK TO — FIELD CEN.
5) START B.G. ETC. + SLIDING CELS PANNING RT. or LFT. — PAN BOTTOM PEGS EAST — USE GUIDE 1-2-3-4

CAMERA AT — FIELD CEN

6) WHEN PAN STOPS AT CEN. TOP PEGS NOW AT CEN

7) 12 EXP. DIAGONAL WIPE SOUTHEAST TO NORTHWEST — USE MASKS (M-OL-1) — P-1 TO P-12 AND N-1 TO N-12



8) START VERTICAL SIDE PEGS MOVING NORTH. — SIDE PEGS ARE 10½ INCHES LEFT OF CENTER. YOU MUST STATE THIS AS SOME PEGS VARY IN DISTANCE FROM CEN: PEGS.

9) <u>2ND RUN</u> ~~Dou~~ DOUBLE EXPOSE OVER BLACK CARD.

THINGS TO REMEMBER

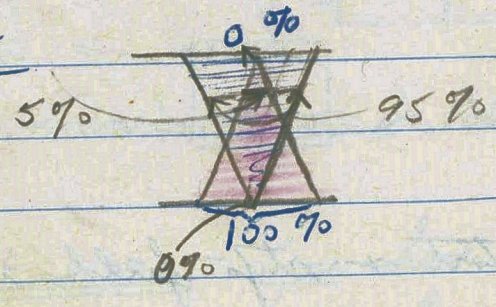
1) On an optical wipe you always slate, "2 extra" (SEE BACK - #8)

2) When shooting a X dissolve, — shoot animation by opening + closing lens, SOME STUDIOS ~~not~~ by lights, — DARK to light or VISA-VERSA.

3) When doing a flash, — never make it more than 6 exp. (3 DWG'S)

4) When cross dissolving (something on and something off) the remaining levels on that frame are affected by the dissolve. They receive the remaing % of light when the camera is rolled back. TOTAL 100%

EXAMPLE



a frame recieved 5% the first time, when rolled back recieves the remaing 95%

5) A full field is never seen except on a camera. On Television you get a "cut off" EXAMPLE ON A 12 FIELD you see only about 8 FIELD.

6) Some studios ~~are~~ put pan moves on TENTHS.
EXAMP. .05 (½ TENTH) .10 (ONE TENTH) .20 (ONE TWENTIETH)

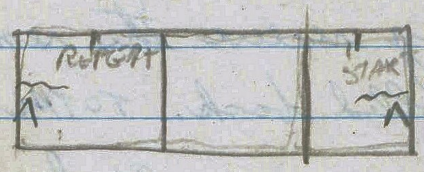
THINGS TO REMBER.

7) On vertical side pegs, - START mark usually starts on center line of "FIELD GUIDE"!

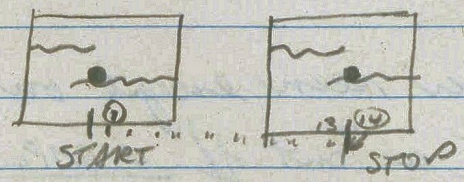
(8) An optical wipe, because it is ment to be like a cut is short, (Average 12 FR.'S - sometimes 6) and must have 2 FRAMES EXTRA (This allows ~~it~~ fot it not to be even shorter than it is.) SEE OPP. PG. BOTTOM

9) The begining of every picture has a 40 ft. leader. To give the ~~cutter~~ "station" extra air time. To cut it off or leave it on is entirely up to them.

10) When making a repeat pan you need a field size in between because, start field + repeat fied must hook up. Without the middle field B.G. to break up the start + repeat field would be very obvious.



On a repeat pan start + stop field usually match



But on expesing the pan no's you write from #12-13 14-(1)

ALSO: To move the film up or down for mouth accents or animation accents, before it is sent for opticals.

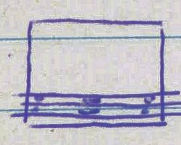
The two scenes are shot straight through just as ordinary scenes.

In a camera dissolve we never have two extra. It is not needed because cameraman shoots both scenes together (as if one scene). Fields doesn't have to be the same size

When double exposing anything (chair, car, flowers) it does not lose color value. It reproduces exactly as rendered. THE MORE RUNS THE MORE

Culhane camera (Lerme) spins clockwise & counter-clockwise, ~~Stand & is stationary~~ but is stationary. Stand and pegs move. No side pegs.

Many cameras are exactly opposite to this procedure. It also has a 12 FIELD and 16 FIELD SET UP. ~~The~~ On a 16 FIELD SET UP ~~the~~ pegs are directly beneath the sliding pegs



← PEGS FOR 16 FIELD

FIELDS

1. OPTICAL DISS. - Can have extra frames
CAMERA DISS - Never has extra frames

2 OPTICAL WIPE (a) camera BI-PAK) (B) OPTIC. PRINTER) 2 EXTRA MUST HAVE

SAME { CAMERA WIPE
ANIM. WIPE

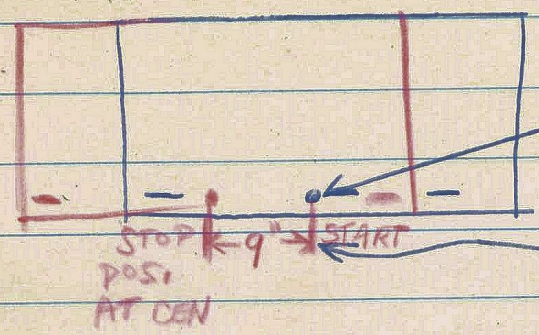
* All camera BI-PAKS are considered opticals.

When dissolving + matching never Trick! EXAM,

BOX WITH BOWL : TO : BOWL } BOTH EXACTLY SAME SIZE AND IN THE SAME POSITION.

PROBLEMS

1) Start bottom page 9 INCHES west of center
START 9" TO THE LEFT AND MOVE EAST.



ORIGINAL POSITION (OF CAMERA BOARD CEN.)

NOTE START POS. ALWAYS GOES ON CEN. POS. OF CAM. BOARD

2) B. G. ON BOTTOM PEGS — IMPOSSIBLE!

LEVEL- #1	OEL MOVING RT. (BOTT. PEG)	STATIONARY?
2	" " LFT. (TOP PEGS)	MOVING?
3	OL - STATIONARY (BOTT PEGS)	
4	STATS (ZOOMING UP) (BOTT PEGS)	

SOLUTION Tape B.G. on camera bed. Use floating pegs for (OL LEV. 3) + (LEV. 4)

ALSO

TAPE B.G. TO camera bed stationary

LEV. 1 MOV. LFT. (TOP PEGS)
" 2 " RT. (BOTTOM PEGS)
3 STATIONARY (BOT. FLOATING PEGS)
4 OL. " (" " ")

(START MARK) USUALLY STARTS ON CEN LINE OF FIELD GUIDE

CEN. LINE OF FIELD

START

STOP

SCOTCH TAPE

LETTERING TO MOVE UP TO THIS POSITION

BOT PEG PAPER

12 11 10 9 8

CEN.

10

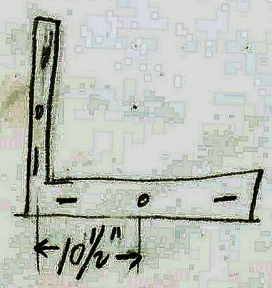
½" UP TO CEN. OF CEN PEG

FROM CEN. PEG (~~OF~~ RULER TO MIDDLE OF SIDE PEG RULER IS 10½ IN. INCLUSIVE)

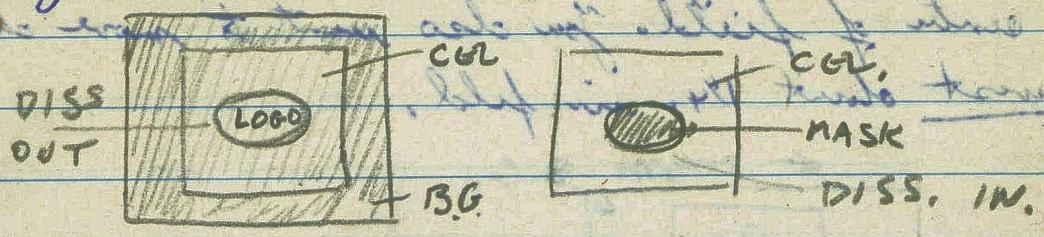
PROB!

(PAPER WAS ON BOTTOM PEGS — HAD TO PUT IT ON SIDE PEGS!)

(WRITE ON EXP. SHEET) — [START VERTICAL SIDE PEGS MOVING NORTH - SIDE PEGS ARE 10½ INCHES WEST of CEN. —] CAMERMAN MUST KNOW THAT IT IS 10½, — as some camera set ups are different. Checking manually makes a cardboard Templet.

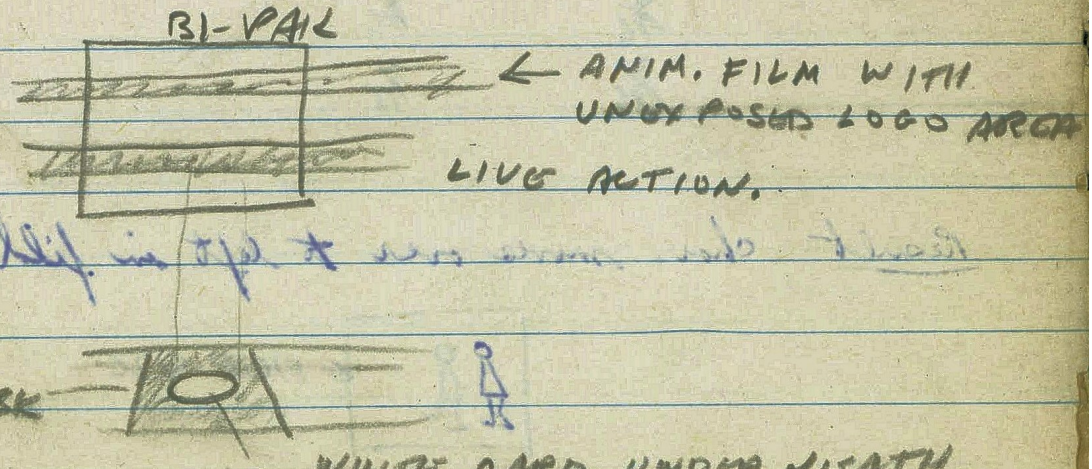


PROB. To keep animation B.G. ON. To dissolve off logo and diss. in live action in logo area.



SOLUTION

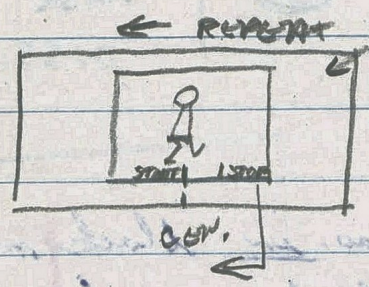
Diss. out logo oval. Diss. in black mask oval. Shoot mask thru to end of scene. (oval is now unexposed on film.) — Roll anim. back and BI-PAK OF live action and anim, with reversed mask



When you get to X-DISS. you fade in live action

The area of white oval reflects live action into oval if that is on anim film. Black mask area does not ~~fade~~ reflect up.

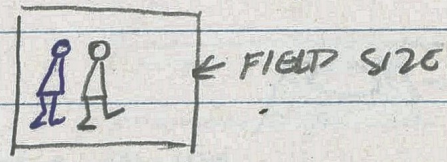
PROB. B.G is moving west at 1/8 PER FRAME; character is walking in cycle on single field cels. in center of field. You also want to move character to west about 1/4. in field.



SOLUTION

	1/8	0
Move B.G.	2/16	1/16 CHAR.
	2/16	1/16
	3/16	1/16

Result char. moves over to left in field position.



1
2
3
4
5
6

A cartoon head can be stretched or squashed to strenghten an expression. The oval containing the eyes does not change greatly, — most variable is mouth area.

PROGRESSIVE STEPS IN DRAWING A CHARACTER

1 Draw in "Line of action" for stance of fig.
~~2. Rounded masses for head and body put in.~~
2. Place feet on ground.
3. Put hip mass in and decide angle of body
4. Put round mass for head, and add arms and legs.
5. Perspective lines around masses are put in to establish front, side, tilt etc. of body and head.
6. Details are added around these construction lines

BASIC BOUNCING BALL ACTION

As Ball falls - its speed increases. Ball stretches in the falling and taking off positions. Ball at highest point slows up — Drawings are spaced closer — resumes natural shape. As ball hits it recoils — becomes squashed

WALK AND RUN

The position of the back foot on the contact diving determines the speed of an action. On a walk the back foot is on the ground. On a run the back foot is off the ground. On a fast run the foot is still higher. The front foot is stretched out further on the walk, the body more upright, denoting less speed. On the run the body leans forward, and the front foot is back further. On the fast run the body leans away forward denoting speed, and the front foot is back under the body. On the fast run the arms are held straight out.

In the walk, the arms and legs are stretched out the furthest. ON CONT. BWG On the run, the stretch comes when the figure is up in the air, at the highest point in the action. On the fast run the ~~the~~ leg is stiff and way back at the high point, (other leg is under body.

On the fast run avoid silhouette position by keeping the head and body in a circular motion.

A walk and run have a double circular action. A fast run has a single circular action.

In a walk the angle of the foot on the contact diving is more severe than the Run; And the run is more severe than the fast run.

Le good idea is to change the position of a char. after each sentence - instead of changing positions on every word.

Always try to anticipate ~~an char.~~ action, in going from one place to another

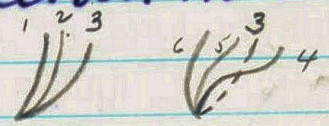
To help accent a pose on a char. go past it a little when animating into a pose. Lo in a quick point, the finger goes out fast and past for an instant the position it finally stops at

Use exaggerated foreshortening in animation. It is very effective. EXAM. End of bat swings toward the camera

Always make a path of action and spacing chart of the action you are animating. EXAM: Char. runs from foreground to background. Make two lines charting the top and bottom of the char. in its flight. Then mark off on this track the estimated pos. of the char. of each drawing.

X To every movement there are 3 parts
1 Anticipation (What happens before the action)
2. Action (the actual motion)
3. Re-action (overlapping action) What happens after the main action.

The hip mass leads first. The hip mass pulls away from the upper two masses and upper masses flow through in an effort to overtake the errant hip. The hip mass always reverses its direction before the upper masses can stop and change direction. (The tip of the action lines lags behind, and then continues forward even after the hip mass has changed direction) The figure and its parts therefore "flap" according to the hinges and recover. (Blade of grass principle)



A deferate line of action can become monotanous unless you break it by an accent. EXP. The bending of a horses body, by using his tail, — Have it in a ~~of~~ different direction than the line of action.

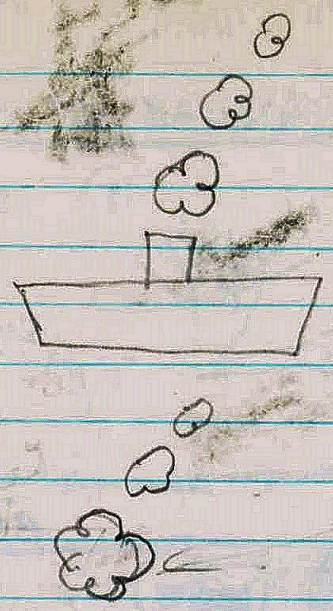
When throwing something out of your hand, — object should be out of hand and hand open when arms are fully extended.

In a waving action, (arm waving from right to left) the head goes in the opposite direction. Exam. Arm waves to the right head goes to the left.

(1) Whenever you have a product (etc) and you dont want it to draw attention, — put it in perspective.

(2) try not to have elbows + arms sticking out, — keep body + arms as a unit. (Unless arms mean something) — Draw in hands first then hide elbows.

B C D E F G H I J K L Mc N O P Q R S T U V Y Z



ANIM LIKE SO

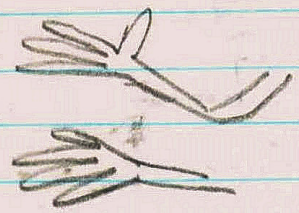
1ST CLOUD POPS BIGGER THEN POPS TO NORMAL SIZE

(2) 2ND CLOUND POPS BIGGER THEN TO REG. SIZE

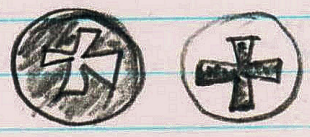
(3) ETC.

R
S
T
U
V
Y
Z

HANDS IN CLEAN UP MANNER

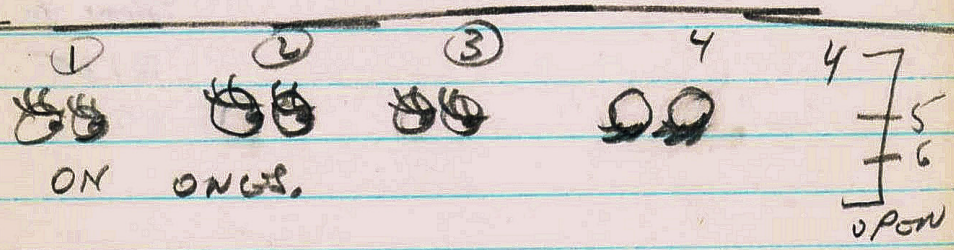


SWITCH HANDS
ON TWO'S
WITH ONE INB
MIDDLE
ON ONES



BLACK -	WHITE
6 FR.	7 FR.
8.	8.
8	8

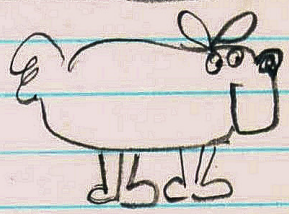
MSO 6 ON 8 OFF



ON ONES.

EYLASHES FLAP IN WHIP ACTION

DOG SCOOTS
ALONG



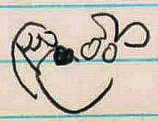
HOLD
POS.

1, 2, 3, ON ONES #1

DOG POINTS
TO NOSE

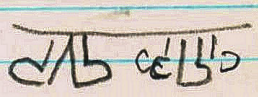
2 FRAMES

2 DWGS
NO INB'S

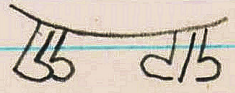


3 FRAMES

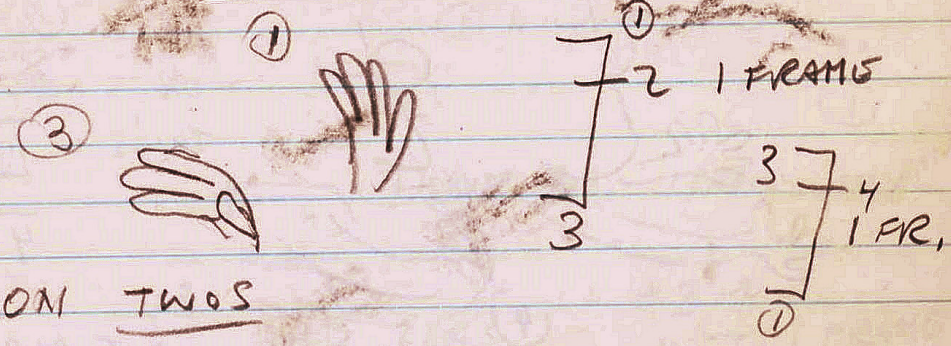
#2



#3

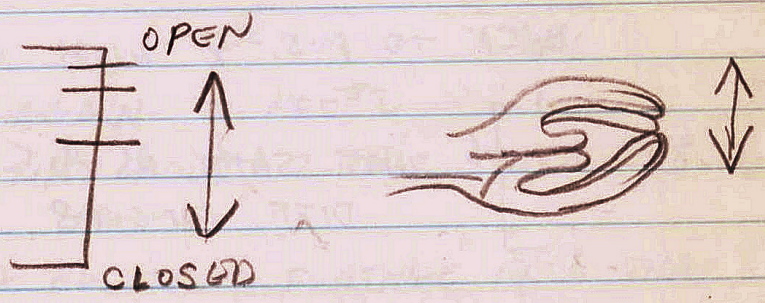


GUY WAVES

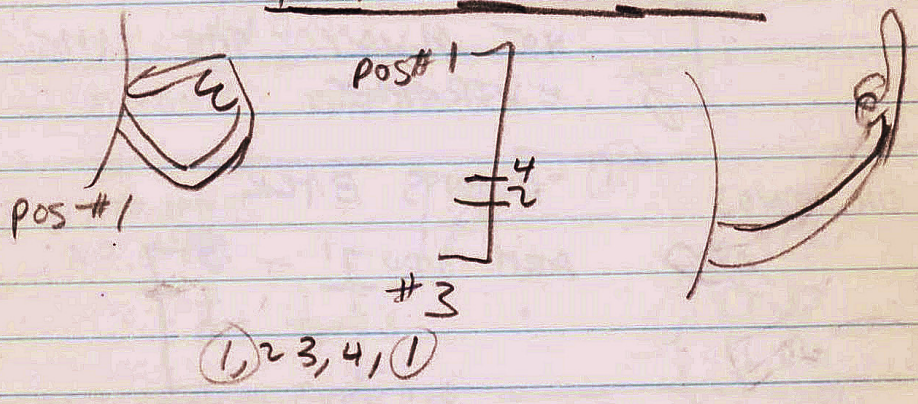


ON TWOS

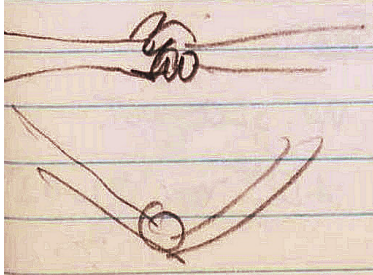
GUY SPREADS HANDS



POINTS TO SELF



HAND SHARING

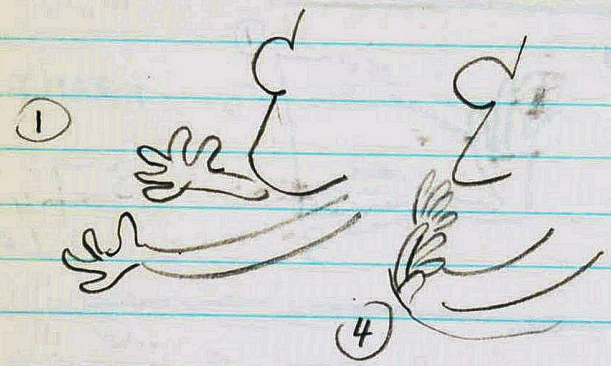


UP 6 FRAMES

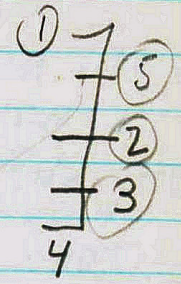
DOWN 3 FR'S

NO INB'S

GIMME CHAR



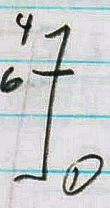
ON TWO'S



OUT AGAIN WITH SLO IN #5

BACK TO POS. #4 WITH A SLO OUT

NOT SAME AS #5 DWG.
DIFF. FINGERS

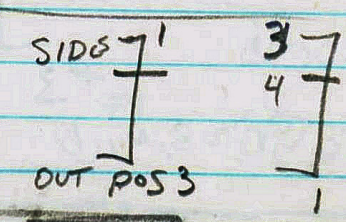


DIFF #4 + #1
NOT ALWAYS THE SAME EXTREMES.

POINTS BACK

ON TWOS

ARM SIDE



OUT POS 3

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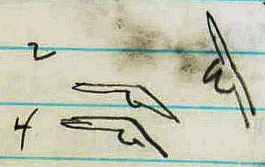
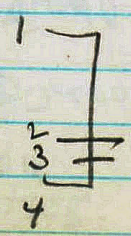
① FINGER POINTS

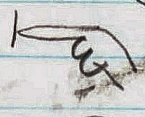


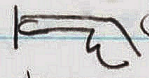


NO SLO OUT
ALL ON TWO'S

FINGER POINTS OVER SHOULDER

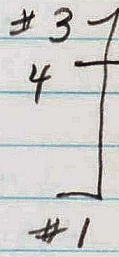
① HOLD 4 FRAMES





② OUT POS. – 1 FRAME ONLY

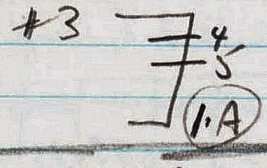
③ HOLD 2 FR'S



1 FRAME

OUT AGAIN TO POS #2
THIS TIME HOLD 2 FR'S INTO #3

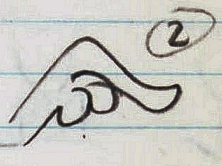
TO A POSITION FURTHER BACK THAN #1



FINGER TAPPING

2 EXTREMES
NO INB'S

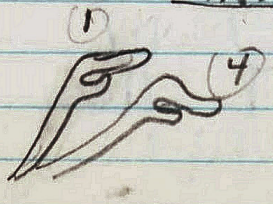
①

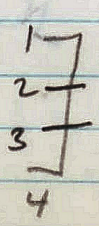


②

ON TWO'S

TAPS GUY





EXP 1, 2, 4.
4, 3, 2, 1

* SEE NEXT PG.

*SEE PREVIOUS PG.

HAND TAPPING SHOULDER ETC.

BACK ① 2

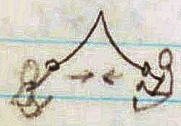
FORWARD ③

ACCENT WITH A SLOW OUT

EXP. 1, 2, 3 - 123, 123

NOT 1, 3, 2 1

NUTTY SQUIRRELS DING DONG

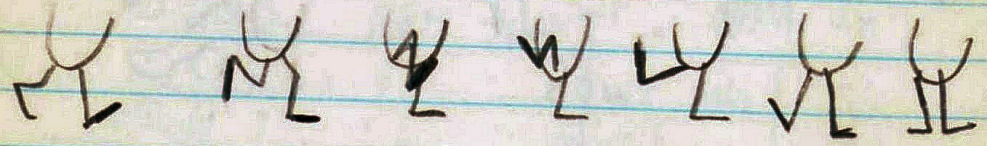


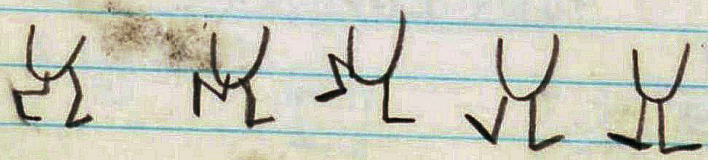
CHARACTER COME TOGETHER

HOLD. FOR 13 FRS. AS CAMERA JARES

FLD 8, 5, 8, 5½, 8, 6, 8, 6½, 8, 7, 8, 7½, 8

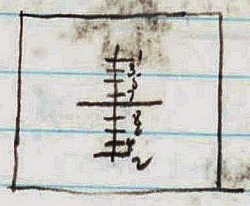
THEY SPIN OUT + AROUND FASTER + FASTER INTO A 2 DWG CYCLE 95 - 96 - 95 - 96 ETC. OUT OF TOP OF FLD. IN 30 FRAMES.





STAGGERS.

FLD JAR



EXP 1, 2, 1, 2, 3, 4, 3, 4, 5, 6, 5, 6, 7, 8, 7, 8, 9,

PROGRESIVE STAGGER

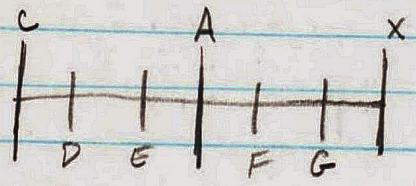
16
17
18
19

GOES UP 2 — BACK 1

EXP

16, 18, 16, 18, 17, 19, 17, 19, ETC.

STAGGER SIDE TO SIDE BACK TO CENTER.



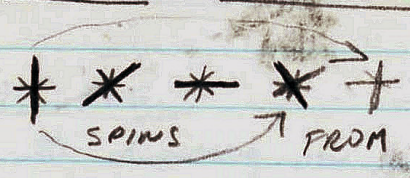
EXP X, C, X, D, G, D, G, E, F, E, F, A

VIBRATES & POPS UP

EXP

1, 2, 3, 2, 3, 2, 4, 3, 4, 3, 7
6 6 5 6 5 7 6 7 6

STARS SPARKLES



EXP ON TWO'S FROM SMALL TO LARGE + USE SAME DWGS TO GO DOWN + OUT.

DOWN + OUT.

IF YOU DO MANY, —— HAVE THE SECOND ONE APPEAR ABOUT 4 OR 5 DWG'S AFTER THE 1ST APPEARS + VARY THE 3RD ETC.

DEFINITIONS

CONTACT DWG.
Is the drawing on which the foot after being lifted, strikes the ground. This dwg. sets the speed size of character, etc of the action.

DOUBLE CIRCULAR ACTION
In a walk or run the head and body have moved in a circular action twice to resume the exact same feet position and stance it started with. (When feet are several in contact position it has gone in one curve movement.)

SINGLE CIRCULAR ACTION
In a fast run the head and body have moved in circular action only once to resume the position it started with.

LINE OF ACTION
An imaginary line extending thru the main action of the figure.

TAKE
Registers sudden surprise. The Take is usually always preceeded by a good anticipation.

ANTICIPATE Go in the opposite direction.

T
U
V
Y
Z

OVERLAPING ACTION

In animating a character from one point to another, dont go there all at the same time. The main action can be first, and followed by lesser actions that all relate. ~~to the~~ or are the result of the main action.

FOLLOW THRU

When something is waved or jerked it will follow a definite curving path determined by the position of it a split second before.

RECOIL

Is a type of squash drawing. ALSO: (Lowest part of a walk is called a recoil drawing.)

T
U
V
Y
Z